



## HYDROGEN DETECTION, LEAK LOCATION AND ANALYSER SOLUTIONS

FIXED HYDROGEN GAS SENSORS: FIXaHY SERIES

MODEL: FIXaHY-G-01-03040102102020

APPLICATION: HYDROGEN SAFETY IN POWER GENERATION PLANTS



### Widest Range of Parametric Selection Available For

Operating Range | Resolution | Sensitivity | Response Time | Sensor Size | Sensor Output | Enclosure Type  
Hazardous & Non-Hazardous Area Compliant | Ingress Protection IP 65 to IP 68 | Process Analysis

### Bespoke Customized Solution Development

Our high-class R&D Lab and Calibration + Repair facility can cater to most challenging requirements

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**Manufactured By: Multi Nano Sense Technologies Private Limited**

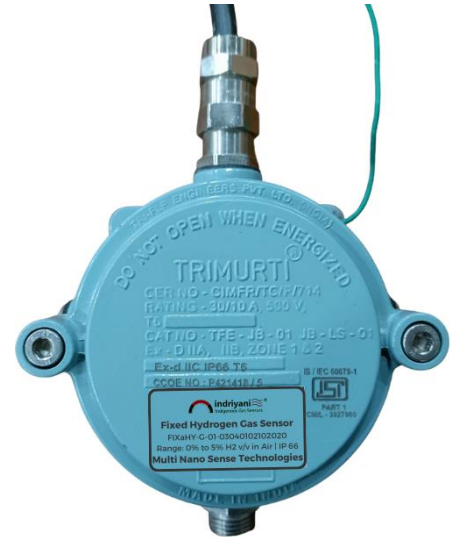
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### General Description

**FIXaHY-G-01-03040102102020** is a robust Hydrogen Gas Sensor with ultra-high sensitivity to even 10 PPM (part per million) over a very wide range up to 5% H<sub>2</sub> v/v in Air. **FIXaHY-G-01-03040102102020** is based on our Patented Solid State Electrochemical Sensor Technology with Solid Electrolyte and Novel Reference Electrode. It measures direct partial pressure of Hydrogen in Air. It is specific, selective, and intelligent to Hydrogen alone and does not face any interference from other combustible and reducing gases, unlike other technologies used for generic Hydrogen detection. These are vast improvements in bridging the gaps in Hydrogen sensing requirement. The instrument has been tested at a 3<sup>rd</sup> Party BASEEFA accredited test lab and conforms to Intrinsic Safety (Ex ia) level of protection according to the guidelines specified by electrical safety standard **IS/IEC 60079-11: 2011** and **IS/IEC 60079-0: 2017**. The instrument conforms to “Ga” level of equipment protection and can be deployed in **Zone 1 Gas Group IIC**.



### Application Description

**FIXaHY-G-01-03040102102020** is used for remote area monitoring in power generation plants to protect the plant from Hydrogen explosions by continuously monitoring the concentration of Hydrogen and raising alarms if Hydrogen concentration crosses the user defined thresholds. It is the most capable sensor technology for critical applications where 100% pure Hydrogen is stored, transported, and transacted. The sensor does not get damaged upon exposure to high concentrations of H<sub>2</sub> and had an operating life of 4-5 years. The sensor is housed in a robust waterproof and dust-proof **IP 66** LM6 pressure die cast aluminium alloy enclosure for withstanding tough environmental conditions and ensuring a long sensor life. The enclosure is a PESO approved and CIMFR certified Flame Proof Enclosure for ensuring ultimate electrical safety of the product and deployment environment. The sensor's 4mA to 20mA current output can be deployed for long distance transmission of up to 1 Kilometer.



**FIXaHY-G-01-03040102102020** operates on 24V DC current loop and provides a linear output of 4mA to 20mA over the entire range. It can be integrated directly with the User's SCADA, PLC, DCS, and other data gathering systems. It can also connect with our single or multi-channel Control & Display Units for local display, trigger-based automation, local alarms, calibration, data logging and system settings.

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### **Key Advantages**

- **Robust Enclosure:** The sensor is housed in a heavy duty enclosure to survive in harsh environments.
- **Fastest response time:** Instantaneous response with maximum lag of 3 seconds.
- **No damage on over-exposure:** Even if sensor is momentarily exposed to 100% pure Hydrogen.
- **No Cross Sensitivity:** Other combustible and reducing gases do not interfere with sensor functioning.
- **No False Alarms:** Highly reliable operation due to selective sensing of Hydrogen alone.
- **Very Fast Recovery:** Immediate feedback of Hydrogen concentration reduction due to response action.
- **Very Sensitive:** Core composition of sensing elements is tailor made to suit detection as low as 1 ppm.
- **High Resolution:** Intricate and high precision electronics ensure 10 ppm resolution over entire range.
- **Long Life:** Capex cost is spread over 4-5 years.
- **User Friendly Calibration & Comprehensive AMC Option:** Low cost and low hassle after sales service.
- **End to End Support:** Remote as well as on-site support. Deep evaluation studies in R&D facility.
- **Robust Enclosure:** Best in class Ingress Protection IP 68 for weatherproof and waterproof deployment.
- **Expert Consultancy:** Our seasoned engineers can guide you for ideal product selection from our vast range of options to suit your requirements.

**Please continue to next page for Technical Specifications**

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### Technical Specifications

FIXED HYDROGEN GAS SENSOR – FIXaHY-G-01-03040102102020		
Sr. No.	Parameters	Description
1	Sensor Technology	Solid State Electrochemical Cell (Direct Partial Pressure Measurement of Hydrogen in gaseous Fluid based on Proprietary Indian Patent No. 252998)
2	Range	<b>0% to 5% H<sub>2</sub> v/v in Air. Output Signal is 4mA to 20mA</b> Fault and over-range indication can be configured as per requirement.
3	Initial Response Time	Instantaneous, less than 3 seconds
4	Cross sensitivity	Nil Cross-Sensitivity. Specific & selective only to Hydrogen with no interference from other combustible, reducing or inert gases.
5	Accuracy	± 5 % of indicated reading.
6	Operating Temperature	0°C to +55°C
7	Humidity	98% RH at 40°C Non-condensing
8	Transducer	Self-generated signal in 2 wires, internally terminated at head on interface. Sensor is housed in a machined metallic enclosure with a protruding threaded end for exposure to gaseous environment.
9	External Power required	24V DC
10	Dimensions and weight	Φ 115x100(h) mm inclusive of protruding Hydrogen sensor in cylindrical barrel with threaded end (1&1/8th inch BSB thread). <b>Flame Proof Enclosure:</b> IP 66   4 Port FLPE Junction Box   Certified: CIMFR Tested & PESO Approved
11	Sampling	By Diffusion, Gas aperture Φ 4mm
12	Housing Material	LM6 Aluminium Alloy
13	Reverse Polarity	Reverse Polarity Protected
14	Compatible Interfaces	MNST's proprietary Control & Display Units and other user interface like PLC/DCS/BMS which can accept analogue voltage output (4mA to 20mA)
15	Connectivity	2-wire or 3-wire configuration for current loop. Wire terminated internally at sensor end. Suitable connectors can be provided at additional cost.
16	Mounting	Wall mounting using brackets supplied along with detector.
17	Calibration (Safe Area Only)	Recommended for high accuracy: Once in every 6 months Minimum: Once in every 12 months
18	Over-exposure Damage Resistant	The sensor does not get damaged upon momentary over-exposure to very high concentration of Hydrogen. The output signal/ readout on the control unit shall saturate at full scale if exposure is above the pre-defined full scale of the sensor. The sensor shall resume normal functionality once Hydrogen level drops. The sensor may take longer time to recover and come out of saturation after prolonged over-exposure if exposed for more than 30 to 60 seconds.
19	Standard Warranty	The goods shall be warranted against issues arising out of manufacturing and workmanship defects for a period of 12 months from date of acceptance of goods at site or 18 months from the date of invoice. It shall not cover physical damage, or any improper functioning caused due to User's negligence or such use in contravention of the guidelines described in the User's Manual supplied along with the product. <b>Warranty does not cover calibration or AMC of sensor.</b> Our warranty certificate covers all terms and conditions.
20	Extended Warranty	Similar coverage as Standard Warranty. Can be purchased as an add-on for 2/3/4 years in addition to standard warranty.

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MULTI NANO SENSE TECHNOLOGIES PVT LTD  
FIXED HYDROGEN GAS SENSOR  
MODEL: FIXaHY-G-01-03040102102020

### **Contact Us**

Do not hesitate to give us a call or write to us for detailed discussion, enquiries, assistance, feedback, or suggestions. Our team will be glad to help you out.

### **Single Point of Contact**

For Collaborations  
For Enquiries  
For Technical Assistance  
For Feedback and Suggestions

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Do visit our website for more information and upcoming technologies -----> [www.multinanosense.com](http://www.multinanosense.com)

**Thank You for showing interest in our products and services!**

*Technical specifications are subject to change without prior notice, due to continuous R&D and development of Company's Products.*

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